

(Duration: 3 hours)

Total Marks : 80

N.B. (1) Question no. 1 is compulsory.

(2) Attempt any **three** questions from remaining **five** questions.

(3) Assume **suitable data** wherever necessary.

(4) Figures in **right** indicate **full** marks.

1. (a) Write a Program to find sum of the digits of a given number. 4
- (b) Explain any two library functions in math.h with example. 4
- (c) Explain type-casting with suitable example. 4
- (d) Explain ternary operator with example. 4
- (e) Explain nested Structure with example. 4

2. (a) What is recursion? Write a Program to find factorial of given number using recursion. 10
- (b) Write a Program to find sum of even elements present in an array of n elements. 10

3. (a) Write a program to calculate multiplication of two M x N matrices. 10
- (b) Write a program to generate following patterns. 10
 - i> 1 ii> A B C D
 - 2 3 A B C
 - 4 5 6 A B
 - 7 8 9 10 A

4. (a) Compare the following : 10
 - i) Entry controlled loop and Exit controlled loop.
 - ii) break and continue statements.

- (b) What do you mean by an algorithm and flowchart? Explain with example. 10

- 5. (a) Write a program using function to check whether entered string is palindrome or not. 5
- (b) Compare call by value and call by reference with suitable examples. 5
- (c) Define a structure named hotel to display Name, Address, Room charge and No. of rooms.

Write a Program that reads information about 'n' hotels and display the hotels with room charges less than 5000Rs. 10

- 6. (a) What is a file? Explain different modes with syntax in which file can be opened. 10
Explain various functions to read and write to a file.
- (b) Write a Program to display all Armstrong numbers between 100 and 999. 5
- (c) Explain static and External storage classes with example. 5